



Vascular Access for Hemodialysis

If you will be starting hemodialysis treatments in the next several months, you will need to work with your health care team to learn how the treatments work and what you can do to get the most from them. One important step before starting regular hemodialysis sessions is preparing a vascular access, which is the site on your body where blood will be removed and returned during dialysis. A vascular access should be prepared weeks or months before you start dialysis. It will allow easier and more efficient removal and replacement of your blood with fewer complications. There are several kinds of vascular accesses.

The arteriovenous (AV) fistula is the best approach if your veins are large enough and there is time to prepare it. Otherwise, a graft or a catheter may be needed.

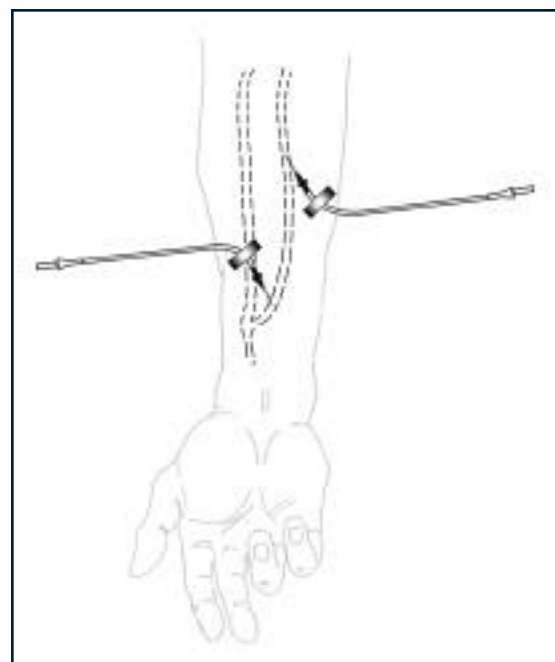
Arteriovenous Fistula

For most people, the best kind of vascular access is an AV fistula. It requires advance planning because a fistula takes a while after surgery to develop (in rare cases, as long as 24 months). But a properly formed fistula is less likely than other kinds of vascular access to form clots or get infected. Also, fistulas tend to last many years, longer than any other kind of vascular access.

A surgeon creates an AV fistula by connecting an artery directly to a vein, usually in the forearm. Connecting the artery to the vein causes more blood to flow into the vein. As a result, the vein grows larger and stronger, making repeated needle insertions easier. For the surgery, you'll be given a local anesthetic. In most cases, the procedure can be performed on an outpatient basis.

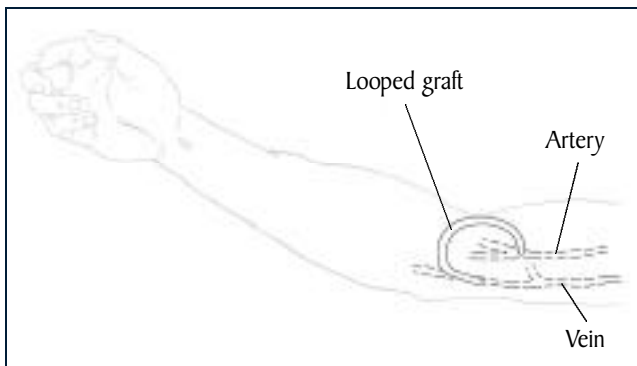
Graft

If you have small veins that won't develop properly into a fistula, you can get a vascular access that uses a synthetic tube



Arteriovenous fistula.





Graft.

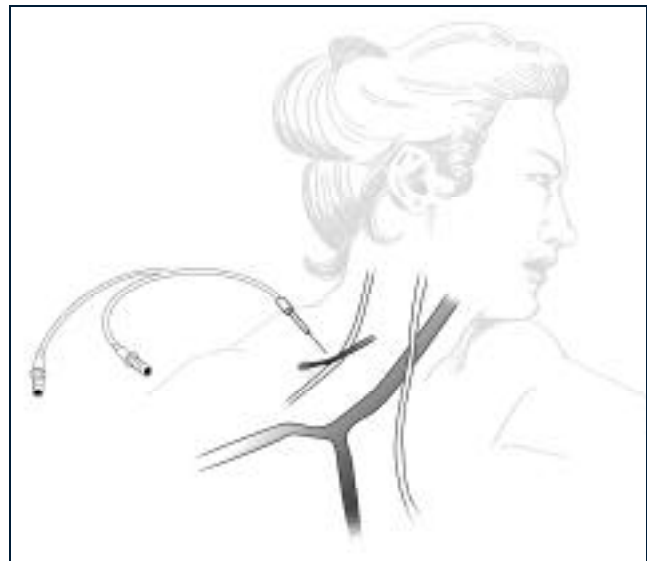
implanted under the skin in your arm. The tube becomes an artificial vein that can be used repeatedly for needle placement. A graft doesn't need to develop as a fistula does, so it can be used sooner after placement, often within 2 or 3 weeks. Compared with fistulas, grafts tend to have more problems with infection or clotting and need replacement sooner, but a well-cared-for graft can last for several years.

Catheter for Temporary Access

If your kidney disease has progressed quickly, you may not have time to get a permanent vascular access before you start hemodialysis treatments. You may need to use a catheter as a temporary access.

A catheter is a tube inserted into a vein in either your neck, chest, or leg near the groin. It has two chambers to allow two-way flow of blood. Once a catheter is placed, needle insertion is not necessary.

Catheters are not ideal for permanent access. They can clog, become infected, or cause narrowed veins. But if you need to start hemodialysis immediately, a catheter will suffice for several weeks or months while your permanent access develops.



Catheter for temporary access.

For some patients, fistula or graft surgery is not successful, and long-term catheter access must be used. Catheters that will be needed for more than about 3 weeks are designed to be tunneled under the skin to increase comfort and reduce complications.

What To Expect During Hemodialysis

With every hemodialysis session, needle insertion is required. Most dialysis centers use two needles—one to carry blood to the dialyzer and one to return the cleaned blood to your body. Some specialized needles are designed with two openings for two-way flow of blood, but these needles are less efficient. For some patients, use of the needle may mean longer treatments.

Some people prefer to insert their own needles. You'll need training for this to learn how to prevent infection and protect your vascular access. You may also learn a "ladder" strategy for needle placement in which you "climb" up the entire length of the fistula session by session so you won't weaken an area with a

grouping of needle sticks. An alternative approach is the “buttonhole” strategy in which you use a limited number of sites but insert the needle precisely into the same hole made by the previous needle stick. Whether you insert your own needles or not, you should know about these techniques so you can understand and ask questions about your treatments.

Taking Care of Your Access

You can do several things to protect your access.

- Make sure your nurse or technician checks your access before each treatment.
- Keep your access clean at all times.
- Use your access site only for dialysis.
- Be careful not to bump or cut your access.
- Don’t let anyone put a blood pressure cuff on your access arm.
- Don’t wear jewelry or tight clothes over your access site.
- Don’t sleep with your access arm under your head or body.
- Don’t lift heavy objects or put pressure on your access arm.
- Check the pulse in your access every day.

For More Information

Your health care team will help you learn more about how to care for your access site. Also, for a copy of the booklet *Getting the Most from Your Treatment: What You Need To Know About Hemodialysis Access*, contact

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